

How Investment Behaviour of Young Investors? A Case Study on The Indonesia Stock Exchange

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Abstract

This research aims to dig deeper into the investment behavior of young investors on the Indonesian Stock Exchange. This research was conducted in Bali Province, especially the Denpasar City area. The sample was determined using convenience sampling with a total sample of 180 young investors, namely the millennial generation and generation z in Denpasar City. Data was obtained directly from distributing questionnaires via Google Form. The data analysis technique used is SEM-PLS analysis. The research results show that, 1) herding behavior effect investment decision making, 2) heuristic bias has no effect on investment decision making, 3) anchoring bias effect investment decision making, 4) the level of overconfidence an investor has will improve the investment decision making process, 5) herding behavior does not have a significant effect on the level of overconfidence, 6) heuristic bias can increase the level of overconfidence, 7) anchoring bias can increase the level of overconfidence, 8) overconfidence cannot increase the effect of herding behavior to improve investment decisions, 9) overconfidence can increase the effect of heuristic bias to improve investment decisions, and 10) overconfidence can increase the effect of anchoring bias to improve investment decisions. Future researchers can further examine overconfidence in mediating the effect of herding behaviours on investment decision making, and the effect of heuristic bias on investment decision making. Young investors in Denpasar City are advised to increase their knowledge and investment skills in the capital market to reduce the risk of bias in making investment decisions.

Keywords: Indonesia Stock Exchange; Young Investors; Investment Behaviours; Herding Behaviours; Heuristic Bias; Investment Decision Making; Overconfidence; Anchoring Bias

1. Introduction

The millennial generation and generation z are young investors who witness technological developments in everyday life. These two generations also observed various changes in the financial industry, including the emergence of various financial products that are closely related to technology, such as cryptocurrency, bitcoin, and peer to peer lending (Kristianti & Kristiana, 2023). The characteristics of these two generations make individuals more flexible in receiving information and quickly adapting to financial information (Andana, 2023). The investment decisions made by the millennial generation and generation Z have something interesting to study, because these two generations have various complex problems from a financial perspective.

There is an interesting phenomenon related to investment decisions made by the millennial generation and generation z in Indonesia, with a high number, but behaviorally it still needs to be researched in more depth as to what factors effect investment decision making. The behavioral aspect is one aspect that is proven to effect a person's decisions, so this research will examine the investment decisions of young investors in terms of the behavioral aspect in making investment decisions.

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Research on the investment decisions of young investors, namely the millennial generation and generation z, is a relevant and interesting topic, considering that these two generations have an important role in the future investment market (Altaf & Jan, 2023). The millennial generation and generation z are large demographic groups and have unique characteristics, such as extensive use of technology, high levels of education, and a strong understanding of social and environmental issues (Widiasih & Darma, 2021). The millennial generation and generation z have various financial goals and financial burdens, so they need to prepare themselves to face current developments.

The existence of the millennial generation and generation z can have an economic impact on certain areas. Bali Province is one of the regions that has a productive age population of 69.89 percent (bali.bps.go.id, 2023). Bali Province is one of the provinces in Indonesia that has the potential to increase the number of investors.

The Indonesian Stock Exchange (IDX) stated that in January 2024, the total number of capital market investors, including shares, bonds, mutual funds and derivative products in Bali for 2023 was 234,753 investors or an increase of 42,774 new investors. In February 2024, the total number of investors in Bali Province will be 238,078 investors, an increase of 3,325 new investors or 14 percent from the previous year. Based on age group, the highest percentage was for those aged 18-25 years at 33 percent. The age groups 26–30 years and 31–40 years each account for 24 percent. The smallest percentage is aged >40 years, amounting to 19 percent. This data shows that Bali investors, especially Denpasar as the capital of Bali Province, the center of government as well as the center of the economy and business in Bali, are ranked as the highest number of investors at 37.9 percent of all investors in Bali (nusabali.com, 2024). The number of investors in Denpasar City based on demographics is the largest and makes the investment decision making of young investors in Denpasar an interesting phenomenon to study.

Investment decision is the process of selecting assets to allocate funds in the hope of getting future profits (Ainia & Lutfi, 2019); (Raut et al., 2020); (Chersoni et al., 2022). Investment decision is the process of planning and making decisions to invest capital in investment instruments to achieve future income and profits (Fitriasuri et al., 2022). Investment decisions are an important part of the financial planning of individuals, companies, or organizations in achieving financial goals. Factors that are indicated to effect investment decision making include herding behavior, heuristic bias, and anchoring bias (Shah et al., 2021); (Atif Sattar et al., 2020); and (Hunguru et al., 2020).

2. Literature Review and Hypothesis Development

Herding behavior is not always detrimental and following strong market trends especially those backed by economic fundamentals and analysis would be a good decision. It is important to conduct objective analysis before making investment decisions and to be careful not to rely too much on herding behavior. Investors should be aware of the existence of herding behavior and its effect on decision-making is the first step in managing risk and making better investment decisions.

Attribution Theory can provide additional insights into how herding behavior affects investment decisions. Attribution Theory addresses the way individuals provide explanations or attributions for their own or others' behavior (Pratiwi & Yunarti, 2021). This theory explains how investors attribute their decision to follow majority behavior or market trends. It is possible for investors to give internal attributions to herding decisions by feeling that they follow the behavior of the majority because of their beliefs or judgments. Investors may give external attributions by feeling that market conditions or available information may encourage them to follow majority behavior.

This hypothesis assumes that the existence of herding behavior will have a positive effect on the investment decision-making process. Investors tend to follow market trends or the actions of other investors that can effect investment decisions. Herding behavior is the behavior of investors following the behavior of the majority in the market without in-depth fundamental analysis. Herding behavior is due to the desire to reduce risk or because it has the belief that the majority is always right.

The results of research conducted by Keswani et al. (2019) shows that herding behavior can improve a person's investment decisions. The results of research conducted by Hunguru et al. (2020) shows that herding behavior has a positive effect on investment decision making. Other research results conducted by Raut et al. (2020) shows that there is a positive effect of herding behavior on investment decision making. Research conducted by Rahayu et al. (2021) shows that herding behavior in a person can encourage them to make investment decisions. Research conducted by Gyanwali & Neupane (2021) shows that herding behavior has a positive effect on investment decision making. Research conducted by Qasim et al. (2019) which explains that herding behavior has a positive effect on investment decision making.

2.1. H1: Herding behavior has a positive effect on investment decision making

The effect of heuristic bias on investment decision-making can lead to decisions that are not always rational or well-informed (Elhussein & Abdelgadir, 2020). Heuristics can assist individual investors in making investment decisions, but they can also introduce bias. Investors who want to reduce the impact of heuristic bias in their decisions should try to be more aware of this bias, conduct more in-depth analysis and if possible they can consult an objective financial advisor (Keswani et al., 2019). Investors developing a well-planned investment plan and sticking to it can help reduce the effect of heuristic bias. Heuristic bias refers to using rules of thumb or shortening time in making decisions without conducting a comprehensive analysis. This hypothesis assumes that the tendency to use heuristics in the investment decision-making process will effect the decision. The effect of heuristic bias may be reflected in decisions to buy or sell assets, portfolio allocation, or other investment actions.

Attribution Theory provides an understanding that the effect of heuristic bias on investment decision making can be interpreted through the way individuals provide explanations or attributions for the use of heuristics in the decision-making process (Pratiwi & Yunarti, 2021). Attribution Theory helps explain how individuals rationalize or explain the use of heuristics in investment decision making. Investors feel that using heuristics is a quick and efficient way to make decisions so investors give internal attributions to their use. Investors may feel forced to use heuristics due to limited information so that investors give external attributions to their use.

The results of research conducted by Rozak & Amalia (2023) show that investors who are heuristic tend to make investment decisions hastily and without consideration. Research conducted by Sudirman et al. (2023) shows that heuristic bias has a positive effect on investment decision making. The results of research conducted by Suresh (2021) show that heuristic bias can lead to investment decisions in an investor. Research conducted by Dangol & Manandhar (2020) shows that a heuristic attitude can increase the investment decision of an investor. The results of research conducted by Atif Sattar et al. (2020) shows that heuristic bias can improve a person's investment decisions. The results of research conducted by Elhussein & Abdelgadir (2020) that heuristic bias has a positive effect on one's investment decisions.

2.2. H2: Heuristic bias has a positive effect on investment decision making

The effect of heuristic bias on investment decision-making can lead to decisions that are not always rational or well-informed (Elhussein & Abdelgadir, 2020). Heuristics can assist individual investors in making investment decisions, but they can also introduce bias. Investors who want to reduce the impact of heuristic bias in their decisions should try to be more aware of this bias, conduct more in-depth analysis and if possible they can consult an objective financial advisor (Keswani et al., 2019). Investors developing a well-planned investment plan and sticking to it can help reduce the effect of heuristic bias. Heuristic bias refers to using rules of thumb or shortening time in making decisions without conducting a comprehensive analysis. This hypothesis assumes that the tendency to use heuristics in the investment decision-making process will effect the decision. The effect of heuristic bias may be reflected in decisions to buy or sell assets, portfolio allocation, or other investment actions.

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2.3. H2: Heuristic bias has a positive effect on investment decision making

The effect of overconfidence on investment decision making can be significant and have a negative impact. Overconfidence is a cognitive bias in which a person has too high a level of confidence in their own judgment, abilities,

knowledge or predictions, even when evidence or facts indicate otherwise (Altaf & Jan, 2023). Overconfidence occurs when individuals have excessive confidence in their own abilities or knowledge, which can affect the decision-making process. Investors can use information about the investment instrument to be used as a consideration before investing in order to avoid the possibility of default risk because the right information can reduce the risk of investment failure and can increase investor confidence to invest (Putri et al., 2017). This hypothesis assumes that the level of overconfidence can effect investment decisions. Overconfidence can affect investors' risk perception. The hypothesis can test whether overconfident investors tend to underestimate risk or are more aggressive in taking risks, and how this affects their investment decisions.

Attribution Theory can help understand how individuals rationalize and explain the level of overconfidence in investment decision making (Pratiwi & Yunarti, 2021). Investors may assign internal attributions to overconfidence by believing that their overconfidence is the result of exceptional knowledge and understanding. Investors may also make external attributions by feeling that the market or general trends support high levels of confidence. This understanding helps in designing more effective educational approaches and interventions to help investors recognize and overcome the negative impact of overconfidence in investment decision making.

The results of research conducted by Abul (2019) show that high self-confidence can cause an investor to make investment decisions. Research conducted by Ton & Dao (2014) shows that overconfidence has a positive effect on investment decision making. The results of research conducted by Fajri & Setiawati (2023) show that overconfidence in investors can cause an increase in investment decision making. Research conducted by Gyanwali & Neupane (2021) shows that overconfidence has a positive effect on investment decision making. The results of research conducted by Dhungana et al. (2022) shows that overconfidence has a positive effect on investment decision making. Research conducted by Rozak & Amalia (2023) shows that overconfidence has a positive effect on investment decision making. Based on the theory and results of previous research, the fourth hypothesis formulated in this study is as follows:

2.4. H4: Overconfidence has a positive effect on investment decision making

The effect of herding behavior on overconfidence in the context of investment decision making is complex and can vary. Investors tend to engage in the same herd behavior and can reinforce their overconfidence (Atif Sattar et al., 2020). Individuals see the behavior of the majority of other individuals in doing the same thing, then they will feel more confident that the decision is correct because many people do the same thing and consider it impossible to be wrong. This behavior can increase the level of excess confidence (Rozak & Amalia, 2023). This hypothesis assumes that the existence of herding behavior, or imitative behavior in investment decision making can have a positive effect on the level of overconfidence, because investors tend to follow the behavior of the majority, thus increasing their level of overconfidence.

Individuals may make internal attributions to their level of overconfidence as a result of personal knowledge or beliefs. If herding behavior plays a role in the level of overconfidence, they may give external attributions to social pressure or market trends that effect their beliefs (Pratiwi & Yunarti, 2021). Attribution Theory can help understand the complex dynamics between herding behavior and overconfidence. Individuals may give internal attribution to overconfidence as a result of personal beliefs, but in the context of herding behavior, they may also give external attribution to social pressures or norms that effect collective behavior.

The results of research conducted by Shah et al. (2021) shows that herding behavior can cause investor confidence to increase because it has a lot of support. Research conducted by Hunguru et al. (2020) shows that herding behavior has a positive effect on overconfidence. Research conducted by Gyanwali & Neupane (2021) shows that going with the flow and other people's decisions can have an impact on increasing one's self-confidence. The results of research conducted by Qasim et al. (2019) shows that herding behavior can lead to an increase in an investor's overconfidence. The results of research conducted by Altaf & Jan (2023) show that herding behavior has a positive effect on investor confidence. Research conducted by Atif Sattar et al. (2020) shows that herding behavior can cause an increase in an investor's overconfidence.

2.5. H5: Herding behavior has a positive effect on overconfidence

The effect of heuristic bias (a cognitive bias related to the use of rules of thumb or mental guidelines) on overconfidence in the context of investment decision-making can create a dangerous combination and impact the quality of investment decisions. Some types of heuristic bias, such as the availability heuristic, can make people focus more on information that is easily accessible in their memory (Keswani et al., 2019). Easily accessible information can support positive beliefs, which can increase the level of overconfidence and excessive optimism about investment returns.

Attribution Theory in the effect of heuristic bias on overconfidence can be explained through the way individuals provide explanations or attributions for the use of heuristics and the level of overconfidence (Pratiwi & Yunarti, 2021). Attribution Theory can help understand how individuals rationalize and explain their level of overconfidence in the use of heuristics. Attribution Theory in the effect of heuristic bias on overconfidence allows for a combination of internal and external attributions, individuals feel confident due to the use of heuristics that are considered efficient, but also realize that external factors, such as market uncertainty can affect the outcome.

This hypothesis assumes that the presence of heuristic bias or the tendency to use rules of thumb or shortcuts in decision making, can have a positive effect on the level of overconfidence in financial markets. Investors tend to use heuristics in decision making, which can increase the level of investor overconfidence. The use of rules of thumb or shortening of thinking can lead to deviations from logic or rational analysis. This hypothesis argues that the existence of heuristic bias can create an environment where the level of overconfidence tends to develop more.

The results of research conducted by Sattar et al. (2020) show that heuristic bias can cause an increase in investor confidence even though the decisions taken may be less precise. Research conducted by Silwal & Bajracharya (2021) shows that heuristic bias has a positive effect on overconfidence. The results of research conducted by Rozak & Amalia (2023) show that there is a positive effect of heuristic bias on overconfidence. Research conducted by Sudirman et al. (2023) shows that heuristic bias has a positive effect on overconfidence. The results of research conducted by Atif Sattar et al. (2020) shows that heuristic bias has a positive effect on overconfidence. Research conducted by Elhussein & Abdelgadir (2020) shows that there is a positive effect of heuristic bias on an investor's overconfidence.

2.6. H6: Heuristic bias has a positive effect on overconfidence

The effect of anchoring bias on overconfidence in investment decision making can be a complex interaction and have an impact on the way a person evaluates and makes investment decisions (Kartini & Nahda, 2021). Anchoring bias often appears in asset or investment price assessments. Investors are too fixated on the initial price they have seen which allows them to use that price as a reference in their judgment, regardless of whether the price is relevant or not. Anchoring bias can increase overconfidence because they feel too confident that the number is the right reference point (Atif Sattar et al., 2020). This hypothesis assumes that the existence of anchoring bias, or the tendency to focus on certain values or information when making decisions, can have a positive effect on the level of overconfidence in the financial markets.

Attribution theory can determine how anchoring bias effect overconfidence by explaining it through the way individuals provide explanations or attributions for the use of initial values in forming excessive levels of self-confidence. Attribution theory can help understand how individuals rationalize and explain their level of overconfidence in the context of anchor use (Pratiwi & Yunarti, 2021). Individuals may give an internal attribution of overconfidence because they feel confident in judgments or estimates that are driven by the initial values used. Individuals may also provide external attributions if they feel that the initial value was imposed by external factors.

The results of research conducted by Hunguru et al. (2020) show that anchoring bias can cause investor confidence to increase. Research conducted by Raut et al. (2020) shows that anchoring bias has a positive effect on overconfidence. The results of research conducted by Kengatharan & Kengatharan (2014) show that anchoring bias can increase investors' self-confidence. Research conducted by Dhungana et al. (2022) which shows that anchoring bias has a positive effect on overconfidence. The results of research conducted by Istiana & Nur (2020) show that anchoring bias can increase investors' self-confidence. The results of research conducted by Atif Sattar et al. (2020) shows that anchoring bias can increase investor confidence.

2.7. H7: Anchoring bias has a positive effect on overconfidence

Investors who engage in large herd behavior can create social pressure and a desire to "go with the flow" by following the majority. Investors may feel that the majority's actions are correct because many people do them (Soraya et al., 2023). Overconfidence or high self-confidence can effect the relationship between herding behavior and investment decision making, this is because an investor's self-confidence when they follow other people's investment decisions will lead to an increase in those investment decisions (Gyanwali & Neupane, 2021). Self-confidence that is too high also does not affect the relationship between herding behavior and investment decisions, because herding behavior is not related to self-confidence but only sees or imitates other people's decisions in investing. Herding behavior or following other people's investment decisions is of course a phenomenon that often occurs. Basically, herding will be done because someone needs confirmation of their choice, when there are other people who have the same choice, the higher their confidence in making an investment (Altaf & Jan, 2023). High self-confidence effect herding behavior in improving investment decisions through overconfidence.

Attribution theory can explain how herding behavior effect investment decision making with overconfidence as a mediator through several aspects of attribution (Pratiwi & Yunarti, 2021). Investors may attribute herding behavior as a response to social norms or market pressures, which may be seen as external factors. Attribution theory can help in understanding how individuals rationalize herding behavior and their level of overconfidence in the context of investment decision making. Herding behavior may play a role as a trigger for collective action, while overconfidence may be a mediator linking this collective behavior to individual investment decisions.

The results of research conducted by Soraya et al. (2023) shows that high trust or overconfidence is one aspect that can effect the relationship between factors that cause investment decision making to increase. The results of other research conducted by Areiqat et al. (2019) shows that overconfidence can be a bridging factor that effect investment decision making. Research conducted by Pratiwi et al. (2021) shows that overconfidence is one aspect that can bridge investment decisions. Research conducted by Jlassi et al. (2014) show that an investor makes investment decisions even in difficult periods such as a recession can be bridged by high self-confidence. Research conducted by Abdin et al. (2022) show that overconfidence can produce bias, because high self-confidence causes an investor to be confident in his decisions. Research conducted by Fajri & Setiawati (2023) shows that high self-confidence can be a variable that bridges investment decisions.

2.8. H8: Herding behavior effect investment decision making with overconfidence as a mediator

Heuristic bias can increase overconfidence which in turn effect investment decisions (Atif Sattar et al., 2020). Overconfidence can cause investors to become too confident in decisions based on heuristic bias, which can have a negative impact on investment results. Overconfidence can effect the relationship of heuristic bias to investment decision making, because of the tendency of someone with a very high level of self-confidence to make investment decisions that are irrational and without consideration (Elhoussein & Abdelgadir, 2020). Overconfidence may also not affect the relationship between heuristic bias and investment decision making, because heuristic bias is an attitude that a person has even when their self-confidence is low, biased decisions can occur.

Attribution theory can explain how heuristic bias effect investment decision making with overconfidence as a mediator through several aspects of attribution (Pratiwi & Yunarti, 2021). Investors can attribute the use of heuristics as an effort to make decisions quickly due to limited time or information. Attribution theory can help in understanding how individuals rationalize the use of heuristic bias and levels of overconfidence in making investment decisions. The use of heuristics can provide a basis for overconfidence, because investors may have excessive confidence in the effectiveness of certain heuristics in overcoming market uncertainty. Investors often invest only with the information they have without trying to carry out in-depth analysis, which can lead to heuristic bias. Heuristic bias creates feelings of satisfaction in investors from the information they have, thereby causing increased self-confidence (Atif Sattar et al., 2020). High self-confidence can bridge heuristic bias to improve an investor's investment decisions.

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2.9. H9: Heuristics can effect investment decision making with overconfidence as a mediator

Anchoring bias can effect the level of overconfidence which will effect investment decisions (Atif Sattar et al., 2020). Overconfidence can cause investors to be confident in decisions based on anchoring bias and have a negative impact on investment results. Overconfidence as a mediator can effect the relationship between anchoring bias and investment decision making, because irrational decisions can occur when they have high self-confidence in their decisions (Dangol & Manandhar, 2020). Overconfidence also does not affect the relationship between anchoring bias and investment decision making, because self-confidence is not the only thing that can bridge this relationship.

Attribution theory can explain how anchoring bias effect investment decision making with overconfidence as a mediator through several aspects of attribution. Attribution theory can help in understanding how individuals rationalize the use of anchoring bias and the level of overconfidence in making investment decisions (Pratiwi & Yunarti, 2021). The initial value taken can be a source of a strong reference point, influencing risk evaluation and asset value estimation which can

trigger overconfidence. The bias that arises from investors trusting too much in the initial information that someone has shows that anchoring bias can cause overconfidence (Istiana & Nur, 2020). Investors only use this initial information as a reason to make an investment decision. Investors who strongly believe in initial information are certainly bridged by high self-confidence, resulting in an investment decision.

The results of research conducted by Soraya et al. (2023) shows that high self-confidence or overconfidence is one aspect that can effect the relationship between factors that cause investment decision making to increase. The results of research conducted by Areiqat et al. (2019) shows that overconfidence can be a bridging factor that effect investment decision making. Research conducted by Pratiwi et al. (2021) shows that overconfidence is one aspect that can bridge investment decisions. Research conducted by Jlassi et al. (2014) show that an investor makes investment decisions even in difficult periods such as a recession can be bridged by high self-confidence. The results of research conducted by Abdin et al. (2022) show that overconfidence can produce bias, because high self-confidence causes an investor to be confident in his decisions. Research conducted by Fajri & Setiawati (2023) shows that high self-confidence can be a variable that bridges investment decisions.

H10: Anchoring can effect investment decision making with overconfidence as a mediator

3. Methods

This research was conducted in Bali Province, especially the Denpasar City area as the research location. The choice of location was based on the phenomenon of increasing the number of investors in Bali and Denpasar as the capital city which of course has a higher number of investors and is the number of investors with the highest ranking in Bali. The city of Denpasar also has extensive investment potential, including the trade, hotel and restaurant sectors, and has attractions that can attract investors.

The scope that will be discussed in this research is the effect of herding behavior, heuristic bias and anchoring bias (X) on investment decision making (Y) with the mediating variable overconfidence (Z).

The population in this research is all young investors in Denpasar City, the exact number of which cannot be known because it continues to change over time.

The sampling technique used is non-probability sampling, namely a sampling technique that does not give each member of the population the same opportunity to be selected as a sample (Sugiyono, 2019). The type of non-probability sampling used in this research is convenience sampling. The convenience of this technique is that respondents are selected because they are in the right place and time, and because the respondent is willing to fill out the questionnaire. Samples are selected based on the following user criteria:

- Domiciled in the Denpasar City area,
- Young investors, namely the millennial generation born in 1981-1996, and generation z born in 1997-2010 (djkn.kemenkeu.go.id, 2023).
- Have made an investment at least once during the research period.

Data processing for an unknown population can determine a sample with five times to ten times the number of parameters estimated (Utama, 2018:44), by calculating the number of indicators $\times 10 = 18 \times 10 = 180$ young investors (millennial generation and generation z). Data analysis in this research uses the Partial Least Square (PLS) approach using SmartPLS software, namely SmartPLS 3.2.7.

4. Result and Discussion

4.1. Structural model evaluation results (Inner model)

Inner model testing is the development of a concept and theory-based model to analyze the relationship between exogenous and endogenous variables described in the conceptual framework. The structural model in PLS is evaluated using R^2 for the dependent construct, path coefficient values or t-values for each path to test significance between constructs in the structural model. The R^2 value is used to measure the level of variation in changes in the independent variable towards the dependent variable. The higher the R^2 value, the better the prediction model of the proposed research model (Jogiyanto and Abdillah, 2016). The path or inner model coefficient value shows the significant level in hypothesis testing. The results of the inner model evaluation are presented in Figure 1.

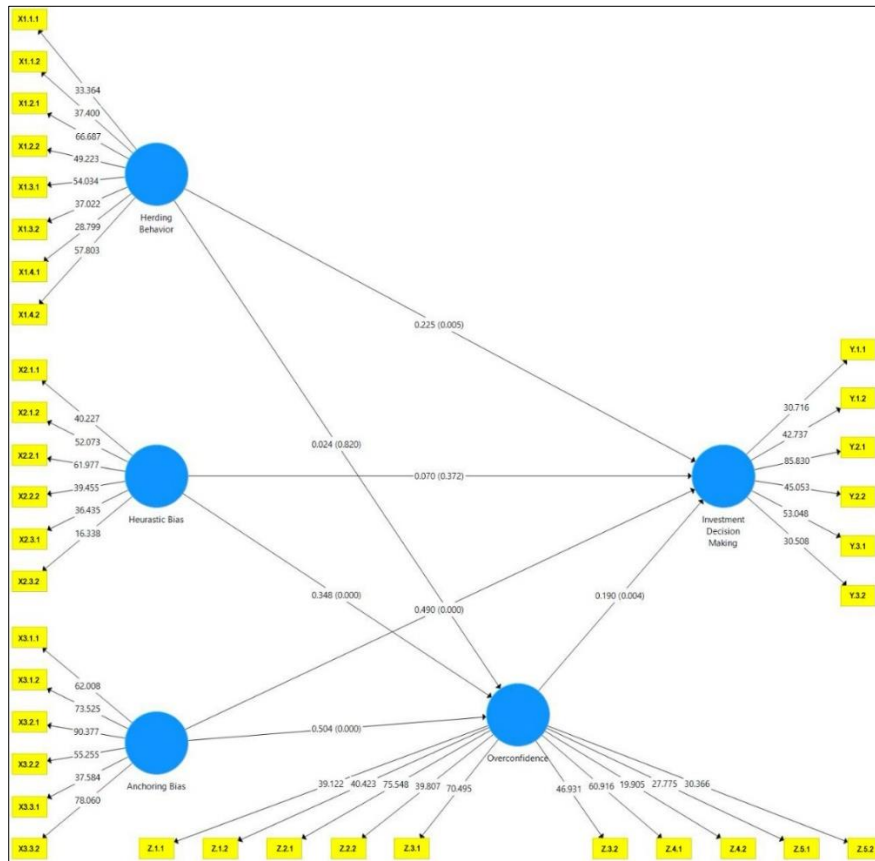


Figure 1 Inner Model

4.2. R-square

R-square for the dependent construct can be used to evaluate the effect of predictors on each endogenous latent variable. Adjusted R-square is used to find out how the independent variable explains the dependent variable, especially if more than two independent variables are used. Adjusted R-square is used to show how much effect the influencing variable has on the effectd variable. The Adjusted R-square value is between 0 and 1, the smaller the Adjusted R-square value indicates the weaker the effect of the independent variable on the dependent variable. If the Adjusted R-square value gets closer to 1, it means that the effect of the independent variable on the dependent variable is getting stronger (Sugiyono, 2016). The R-square test results are presented in Table 1.

Table 1 R-square

	R Square	R Square Adjusted
Investment decision making	0.746	0.741
Overconfidence	0.605	0.599

Primary Data, 2024

Table 1 shows that the Adjusted R-square value for the overconfidence variable is 0.599, so it can be interpreted that 59.9% of the overconfidence variable is effected by variations in the herding behavior, heuristic bias and anchoring bias variables, while 40.1% is explained by variations in other variables. outside of what was researched. The investment decision making variable has an Adjusted R-square value of 0.741, so it can be interpreted that 74.1% of the investment decision making variable is effected by variations in the variables herding behavior, heuristic bias, anchoring bias, and overconfidence, while 25.9% is explained by variations in the variables. other than the variables studied.

4.3. Q-square

Inner model testing is carried out by looking at the Q-square value which is a goodness of fit model test. A Q-square value that shows <0 (zero) shows that the model has good predictive relevance, while a Q-square value > 0 (zero) shows that the model lacks predictive relevance (Ghozali, 2015 in Haryono, 2016). The calculation results show a Q-square value < 0 (zero), then the model can be said to have relevant predictive value. The Q-square calculation can be seen below:

$$Q^2 = 1 - \{(1-R_1^2) (1-R_2^2)\}$$

$$Q^2 = 1 - \{(1 - 0,746) (1 - 0,605)\}$$

$$Q^2 = 1 - \{(0,254) (0,395)\}$$

$$Q^2 = 0,899$$

The Q-square value obtained was 0.899 or 89.9%, so it can be stated that the model has predictive relevance value, or the model deserves to be said to have relevant and very good predictive value. It can be concluded that 89.9% of the relationship between variables can be explained by the model while the remaining 10.1% is explained by other variables outside the model.

4.4. Direct Effect Hypothesis

Hypothesis testing aims to test the significance of the constants and independent variables contained in the equation individually, whether there is an effect on the value of the dependent variable (Sofha and Utomo, 2018). Hypothesis testing using PLS can be seen from the results of booth strapping in the t-statistic table to see whether there is an effect of the independent variable on the dependent variable with a significance level of 5%. A two-tailed test for a level of significance of 5% of an exogenous variable is considered to have an effect on the endogenous variable if it has a minimum t-statistic of 1.96, while for one side (a hypothesis with a positive or negative effect) the minimum t-statistic is of 1.65 (level of significance 10) (Utama, 2016). The results of the direct effect test are presented in Table 5.19.

Table 2 Direct Effect

	Original Sampel (O)	Sampel Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Herding behavior -> Investment decision making	0.225	0.241	0.078	2.868	0.005
Heuristic bias -> Investment decision making	0.070	0.061	0.078	0.896	0.372
Anchoring bias -> Investment decision making	0.490	0.484	0.063	7.771	0.000

Overconfidence -> Investment decision making	0.190	0.188	0.066	2.882	0.004
Herding behavior -> Overconfidence	0.024	0.020	0.104	0.228	0.820
Heuristic bias -> Overconfidence	0.348	0.348	0.092	3.799	0.000
Anchoring bias -> Overconfidence	0.504	0.509	0.063	8.058	0.000

Primary Data, 2024

The p-value of the herding behavior variable on investment decision making is $0.005 < 0.05$ with a beta value of 0.225 with a t statistic value of 2.868 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($2.868 > 1.96$) means it can be concluded that herding behavior has a positive and significant effect on investment decision making, which shows that the hypothesis is supported.

The p-value of the heuristic variable bias towards investment decision making is $0.372 > 0.05$ with a beta value of 0.070 with a t statistic value of 0.896 compared to the t-table of 1.96. The t-statistic value $<$ t-table ($0.896 < 1.96$) means it can be concluded that heuristic bias has no effect on investment decision making, which shows that the hypothesis is not supported.

The p-value of the anchoring variable bias towards investment decision making is $0.000 < 0.05$ with a beta value of 0.490. The beta value of the bias anchoring variable shows the largest value, which means the bias anchoring variable has the greatest effect on investment decision making. The t statistic value is 7.771 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($7.771 > 1.96$), it can be concluded that anchoring bias has a positive and significant effect on investment decision making, which shows that the hypothesis is supported.

The p-value of the overconfidence variable on investment decision making is $0.004 < 0.05$ with a beta value of 0.190 with a t statistic value of 2.882 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($2.882 > 1.96$) means that overconfidence has a positive and significant effect on investment decision making, which shows that the hypothesis is supported.

The p-value of the herding behavior variable on overconfidence is $0.820 > 0.05$ with a beta value of 0.024 with a t statistic value of 0.228 compared to the t-table of 1.96. The t-statistic value $<$ t-table ($0.228 < 1.96$) means it can be concluded that herding behavior has no effect on overconfidence, which shows that the hypothesis is not supported.

The p-value of the heuristic variable biased towards overconfidence is $0.000 < 0.05$ with a beta value of 0.348 with a t statistic value of 3.799 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($3.799 > 1.96$) means it can be concluded that the heuristic bias has a positive and significant effect on overconfidence, which shows the hypothesis is supported.

The p-value of the anchoring variable is biased towards overconfidence at $0.000 < 0.05$ with a beta value of 0.504. The beta value of the bias anchoring variable shows the largest value, which means the bias anchoring variable has the greatest effect on overconfidence. The t statistic value is 8.058 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($8.058 > 1.96$) means that it can be concluded that anchoring bias has a positive and significant effect on overconfidence, which shows that the hypothesis is supported.

4.4.1. Indirect Effect

The p-value of the herding behavior variable on investment decision making with overconfidence as a mediator is $0.836 > 0.05$ with a beta value of 0.005 with a t statistic value of 0.208 compared to the t-table of 1.96. The t-statistic value $<$ t-table ($0.208 < 1.96$), it can be concluded that overconfidence is unable to mediate the effect of herding behavior on investment decision making, which shows that the hypothesis is not supported. The scheme of the indirect effect of herding behavior on investment decision making mediated by overconfidence in this research can be seen in Figure 2

Table 3 Indirect Effect

	Original Sampel (O)	Sampel Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Herding behavior -> Overconfidence -> Investment decision making	0.005	0.003	0.022	0.208	0.836
Heuristic bias -> Overconfidence -> Investment decision making	0.066	0.066	0.031	2.144	0.033
Anchoring bias -> Overconfidence -> Investment decision making	0.096	0.096	0.038	2.549	0.012

Primary Data, 2024

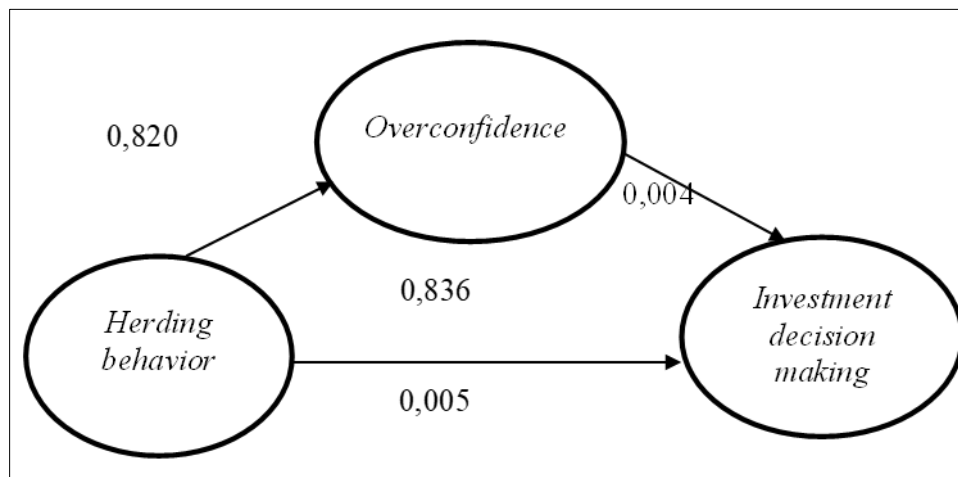


Figure 2 Indirect Effect of Herding Behavior on Investment Decision Making Mediated by Overconfidence

The results of examining the effects of indirect effect in Figure 3 show that the direct effect of herding behavior on investment decision making has a significant effect with a significance value of 0.005, the direct effect of overconfidence on investment decision making has a significant effect with a significance value of 0.004, the direct effect of herding behavior on overconfidence has an insignificant effect with a significance value of 0.820 and the indirect effect of herding behavior on investment decision making is mediated by overconfidence and an insignificant effect with a significance value of 0.836. The results of the effect of the independent variable on the dependent variable in the model involving mediating variables, the effect of the mediating variable on the dependent variable in the model, and the effect of the independent variable on the mediating variable in the model are significant, it can be concluded that no mediation or no-effect non-mediation occurred.

The p-value of the heuristic variable is biased towards investment decision making with overconfidence as a mediator of $0.033 < 0.05$ with a beta value of 0.066 with a t statistic value of 2.144 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($2.144 > 1.96$), it can be concluded that overconfidence is able to mediate the effect of heuristic bias on investment decision making, which shows that the hypothesis is supported. The scheme of the indirect effect of heuristic bias on investment decision making mediated by overconfidence in this research can be seen in Figure 2

The results of examining the effects of indirect effect in Figure 5.4 show that the direct effect of heuristic bias on investment decision making has an insignificant effect with a significance value of 0.372, the direct effect of overconfidence on investment decision making has a significant effect with a significance value of 0.004, the direct effect between heuristic bias on overconfidence has a significant effect with a significance value of 0.000 and the indirect effect of heuristic bias on investment decision making is mediated by overconfidence having a significant effect with a significance value of 0.033. The results of the effect of the independent variable on the dependent variable in the model involving the mediating variable, the effect of the mediating variable on the dependent variable in the model, and the

effect of the independent variable on the mediating variable in the model are significant, then it can be stated as perfect or complete mediation.

The p-value of the anchoring variable is biased towards investment decision making with overconfidence as a mediator of $0.012 < 0.05$ with a beta value of 0.096 with a t statistic value of 2.549 compared to the t-table of 1.96. The t-statistic value $>$ t-table ($2.549 > 1.96$), it can be concluded that overconfidence is able to mediate the effect of anchoring bias on investment decision making, which shows that the hypothesis is supported. The scheme of the indirect effect of anchoring bias on investment decision making mediated by overconfidence in this research can be seen in Figure 3.

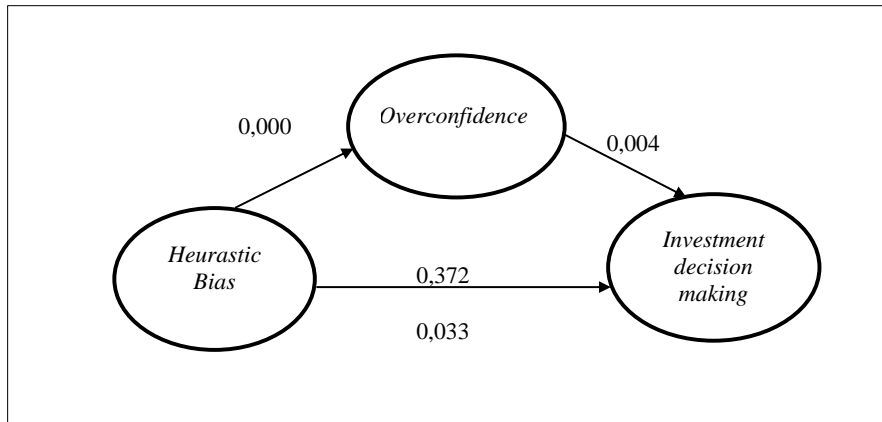


Figure 3 Indirect Effect of Heuristic Bias on Investment Decision Making Mediated by Overconfidence

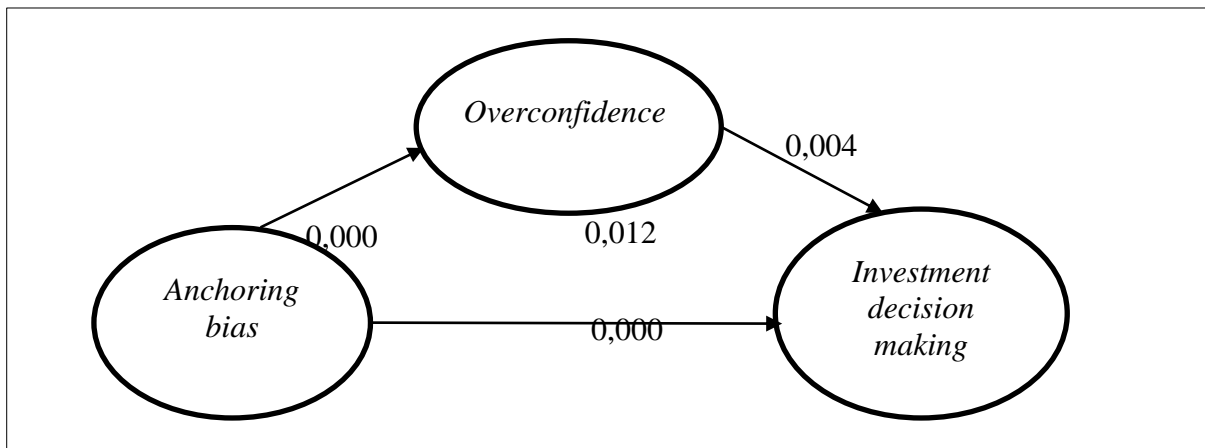


Figure 3 Indirect Effect of Anchoring Bias on Investment Decision Making Mediated by Overconfidence

The results of examining the effects of indirect effect in Figure 3 can be seen that the direct effect of anchoring bias on investment decision making has a significant effect with a significance value of 0.000, the direct effect of overconfidence on investment decision making has a significant effect with a significance value of 0.004, the direct effect of anchoring bias overconfidence has a significant effect with a significance value of 0.000 and the indirect effect of anchoring bias on investment decision making is mediated by overconfidence having a significant effect with a significance value of 0.012. The results of the effect of the independent variable on the dependent variable in the model involving mediating variables, the effect of the mediating variable on the dependent variable in the model, and the effect of the independent variable on the mediating variable in the model are significant, it is proven that partial mediation occurs in the model (partially mediated) with the type of Mediation is included in complementary mediation.

5. Conclusion

Herding behavior, anchoring bias and overconfidence influence investment decision making. Heuristic bias and anchoring bias have an influence on overconfidence. Overconfidence can mediate between heuristic bias and anchoring bias in investment decision making. The results of this research theoretically also support the Attribution Theory which

explains that there are behaviors related to an investor's attitude and personality. Attribution theory can help predict how an investor will behave when solving a problem, so that investors' attitudes and behavior can influence investment decision making through various factors to determine the most effective and efficient investment.

Attribution theory explains that young investors in Denpasar City tend to choose to follow the behavior of the majority and observe market volume which will be used as a reference in making investment decisions. Young investors in Denpasar City prefer to observe capital market volume in making investment decisions because they believe that trading volume reflects market interest and investor activity. Young investors prefer to make simple judgments to minimize risks and increase potential returns. Young investors in Denpasar City who do not have experience in fundamental analysis will prefer to use trading volume as a basis for investment because it is easier to access and understand. Young investors continue to monitor and evaluate investment performance to avoid significant losses and respond quickly to changing market conditions so that investment decision making becomes more effective.

Attribution theory explains that young investors in Denpasar City tend to ignore and not follow investment information in the media and use available information in making investment decisions without evaluating first. Young investors in Denpasar City tend to ignore investment information in the media and rely more on available information without conducting a thorough evaluation. Young investors who have less experience and understanding will make them feel that the initial information they have received is sufficient so that they are confident in their analytical skills. Young investors in Denpasar City believe that by conducting evaluations, direct investment opportunities are more effective than monitoring news in the media. Young investors are trying to focus more on developing the ability to identify investment instruments that suit market conditions and long-term goals rather than following trends or media recommendations.

Attribution theory explains that young investors in Denpasar City associate information and starting points of reference with internal factors that they believe have a significant impact on investment performance and investment decisions. Young investors in Denpasar City prefer to use the initial price of the instrument as a reference in making investment decisions and carry out assessments by comparing the current market price with the initial price without considering changes in market conditions. Young investors in Denpasar City try to buy investment instruments at the right price to achieve optimal profit potential, avoiding sudden price increases. The overconfident behavior of young investors can strengthen the influence of initial information and limit objective judgment. Young investors who have good analytical skills and a deep understanding of the valuation of investment instruments can manage risks better and ensure that investments are in line with their intrinsic values and financial goals.

Attribution theory provides an explanation of the factors that influence investment results which can increase the ability and confidence of young investors in making better investment decisions in the future. Young investors in Denpasar City tend to have good knowledge and abilities in analyzing investment instruments, so they choose to carry out initial assessments to identify risks and minimize losses. Young investors choose investment instruments with high profit potential and in accordance with their financial goals. Young investors in Denpasar City carry out regular evaluations to identify changes in trends or market conditions that affect their portfolios.

5.1. Managerial Implication

Practical implications as a reference for prospective young investors, especially the millennial generation and generation z in Denpasar City, Bali Province regarding information about factors that can cause a person's desire to invest. Young investors in Denpasar City, especially the millennial generation and generation z, must increasingly increase their financial literacy and knowledge about investment such as financial science and capital markets so they are able to analyze the company's financial condition before making an investment.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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